

REMARKS/ARGUMENTS

Finality of Rejection

The Examiner stated that Applicant's arguments with respect to claims 1-34 have been considered but are moot in view of new grounds of rejection. The Examiner also stated that Applicant's amendment necessitated the new ground of rejection, and accordingly, made the present rejection of the claims final. Applicant respectfully traverses the making of the present rejection final.

MPEP § 706.07(a) states "under present practice, second or any subsequent actions on the merits shall be final, except where the examiner introduces a new ground of rejection that is neither necessitated by applicant's amendment of the claims nor based on information submitted in an information disclosure statement filed during the period set forth in 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p)."

Applicant respectfully submits that the Examiner has submitted a new ground of rejection that was neither necessitated by Applicant's amendment of the claims nor based on information submitted in an information disclosure statement during the period set forth in 37 CFR 1.97(c).

In the Office Action issued by the USPTO on May 3, 2005, the Examiner rejected originally filed claims 1-7, 15-17, 19, 20, 22, 30-32, and 34 as being anticipated by Miesel (U.S. Patent No. 6,144,866). At that time, claim 5 was dependent on claim 1 and included the additional limitations "wherein the sensor bus further comprises an average gap between the outer diameter of the insulative layer and the coil conductor, the average gap less than approximately 0.003 inch."

Applicant's response filed on November 4, 2005, included amendments to claim 1 and claim 5, in which a limitation was deleted from claim 5 and added to claim 1. Specifically, the limitation "the sensor bus further comprises an average gap between the outer diameter of the insulative layer and the coil conductor" was deleted from claim 5, and the virtually identical limitation "an average gap between the outer diameter of the insulative layer and the coil conductor" was added to claim 1. Thus, after the amendment, claim 1 included limitations that were included in claim 5 as original filed and rejected as being anticipated by Miesel.

Therefore, the amendment made in the response filed by Applicant on November 4, 2005, did not necessitate the new ground of rejection as stated by the Examiner.

Additionally, Halperin (U.S. Patent No. 5,564,434), the reference on which the present rejections of the currently pending claims is based, was listed in the information disclosure statement submitted at the time the present application was filed, on January 16, 2004. Therefore, the new grounds of rejection are not based on information submitted in an information disclosure statement filed during the period set forth in 37 CFR 1.97(c).

Applicant, accordingly, respectfully requests withdrawal of the finality of the rejection of the currently pending claims.

Rejections Under 35 U.S.C. § 102

The Examiner rejected claims 1, 17-20, and 32-34 under 35 U.S.C. § 102(b) as being anticipated by Halperin.

Claim 1 has been amended to include the insulative layer having an outer diameter that is greater than 1.4 times an inner diameter thereof. Specifically, claim 1 includes the limitation "the insulative layer having an outer diameter and an inner diameter, the outer diameter being greater than approximately 1.4 times the inner diameter."

Halperin does not disclose an insulator layer having an outer diameter that is greater than 1.4 times an inner diameter thereof. Halperin discloses an endocardial lead for implantation in a right heart chamber for responding to blood pressure and temperature and provided modulated pressure and temperature related signals (Abstract). As illustrated in Figures 2 and 3, the lead 12 includes a sensor module 20 located just proximal to a distal tip tine assembly 26 and mechanically and electrically connected to coaxial, outer and inner, coiled wire lead conductors 14 and 16 (column 7, lines 20-24). The lead conductors 14 and 16 are separated by an inner insulating sleeve 22 and encased by an outer insulating sleeve 46 (column 7, lines 24-26). As illustrated most clearly in Figure 1, the inner lead conductor 14 is positioned within the insulative sleeve 22 with a gap separating the inner lead conductor 14 from the insulative sleeve. Although no dimensions of the insulative sleeve 22 or ratios of the sizes of insulative sleeve 22 to the conductors 14 and 16, the insulative sleeve 22 shown in Figure 2 of Halperin is shown as including a thin layer of insulating material and having an outer diameter that is considerably less than being greater than 1.4 times an inner diameter thereof. Specifically, Halperin does not disclose an insulator formed as a coating on the cable conductor sized such that there is a gap between the insulator and the coil conductor.

Claim 20 includes an insulator filling more than half of the gap between the cable conductor and the coil conductor. Specifically, claim 20 includes the limitations “an average gap between the cable conductor and the coil conductor” and “means to reduce a capacitance between the cable conductor and the coil conductor over an implanted life of the lead, the means comprising a polymer material having a dielectric coefficient less than approximately 10 and filling greater than approximately 50% of the average gap between the cable conductor and the coil conductor.”

Halperin does not disclose an insulator filling more than half of the gap between the cable conductor and the coil conductor. As discussed above, Halperin does provide for an insulative sleeve 22 does separate the inner lead conductor 16 from the outer lead conductor 14. Again, the dimensions of the insulative sleeve 22, compared to those of the conductive leads 14 and 16, as well as the space between the conductive leads 14 and 16, are not disclosed. However, as shown in Figure 2, the insulative sleeve 22 includes a thin layer of insulating material that occupies considerably less than half of the space between the leads 14 and 16. In this regard, Halperin is silent on any means to specifically reduce the capacitance between the lead conductors 14 and 16. Specifically, Halperin does not disclose an insulator filling more than half of the gap between the cable conductor and the coil conductor.

Therefore, claims 1 and 20 are not anticipated by Halperin because claims 1 and 20 include limitations that are not disclosed in Halperin.

Claims 17-20 and 32-34 are dependent on either claim 1 or claim 20 and should be allowable for at least the same reasons as claims 1 and 20 stated above.

Applicant, accordingly, respectfully requests withdrawal of the rejections of claims 1, 17-20, and 32-34 under 35 U.S.C. § 102(b) as being anticipated by Halperin.

Rejections Under 35 U.S.C. § 103

The Examiner rejected claims 2-16 under 35 U.S.C. § 103(a) as being unpatentable over Halperin.

Claims 3-16 are dependent on claim 1 and should be allowable for at least the same reasons as claim 1 stated above. Additionally, claims 3-16 include further limitations that are not taught or suggest by Halperin. For example, claim 4 includes the limitation “the outer diameter of the insulative layer is greater than approximately 2 times the inner diameter of the insulative layer,” and claim 7 includes the limitation “the insulative layer is formed as a coating on the cable conductor.”

Claim 2 has been cancelled.

Applicant, accordingly, respectfully requests withdrawal of the rejections of claims 3-16 under 35 U.S.C. § 103(a) as being unpatentable over Halperin.

Additionally, the invention described in the claims of the present application addresses an issue, as discussed in paragraph 0028 of the specification, on which Halperin is completely silent. Although maximizing second average gap 645, being filled with air having a minimum permittivity, would further decrease a capacitance between cable conductor 38 and coil conductor 39, it is recognized that, over the life of an implanted lead, bodily fluid may permeate into a lumen containing sensor bus 600 and fill gap 645 (paragraph 0028). Since bodily fluid has a relative dielectric coefficient of approximately 80, a larger second gap 645 will significantly increase capacitance between conductors 38 and 39 (paragraph 0028). Therefore, in order to keep capacitance low and to reduce drift in capacitance over time, according to some

embodiments of the present invention, greater than approximately 50%, preferably 80%, of first average gap 640 is filled with a polymer material having a relative dielectric coefficient less than approximately 10, and preferably less than approximately 3 (paragraph 0028). Although such a polymer material may be insulative layer 309 illustrated herein, the polymer material may fill any portion of first gap 640 in combination with insulative layer 309 to fill the greater than 50% of the first gap 640 (paragraph 0028).

As discussed above, Halperin teaches an endocardial lead for implantation in a right heart chamber for responding to blood pressure and temperature and provided modulated pressure and temperature related signals (Abstract) and makes no mention of the capacitance between the inner and outer conductors 14 and 16. Thus, a person of ordinary skill in the art would have no motivation to modify the endocardial lead of Halperin in such a way to include the above-mentioned limitations of claims 1 and 20.

Claims Not Listed as Rejected

Applicant would like to respectfully call the Examiner's attention to the fact that claims 21-31 were not specifically listed as being rejected in the Detailed Action section of the final Office Action issued on July 25, 2006.

However, Applicant respectfully submits that claims 21-31 are dependent on claim 20 and should be allowable for at the same reasons as claim 20 stated above. Additionally, claims 21-31 include further limitations that are not taught or suggest by Halperin. For example, claim 21 includes the limitation "the polymer material fills greater than 80% of the average gap between the cable conductor and the coil

conductor,” and claim 22 includes the limitation “the relative dielectric coefficient of the polymer material is less than approximately 3.”

Conclusion

In view of Applicant's amendments and remarks, it is respectfully submitted that Examiner's objections and rejections have been overcome. Accordingly, Applicants respectfully submit that the application is now in condition for allowance, and such allowance is therefore earnestly requested. Should the Examiner have any questions or wish to further discuss this application, Applicants request that the Examiner contact the Applicants attorneys at the below-listed telephone number.

If for some reason Applicants have not requested a sufficient extension and/or have not paid a sufficient fee for this response and/or for the extension necessary to prevent abandonment on this application, please consider this as a request for an extension for the required time period and/or authorization to charge or refund Deposit Account No. 13-2546 for any fees or credits that may be due.

Respectfully submitted,

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Date

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